

first module configured with a first display screen, and second module rotatably coupled to the first module and configured with a second display screen.

Additional advantages, objects, and features of the invention will be set forth in part in the description which follows and in part will become apparent to those having ordinary skill in the art upon examination of the following or may be learned from practice of the invention. The objects and advantages of the invention may be realized and attained as particularly pointed out in the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will be described in detail with reference to the following drawings in which like reference numerals refer to like elements wherein:

FIG. 1 is a perspective view of a prior art notebook computer,

FIGS. 2a and 2b are diagrams showing schematic perspective views of a dual display type portable computer according to a preferred embodiment of the present invention;

FIGS. 3a and 3b are diagrams showing exploded perspective views of an exemplary hinge unit employed in a dual display type portable computer according to a preferred embodiment of the present invention;

FIG. 4 is a block diagram showing an exemplary control configuration for a dual display type portable computer according to a preferred embodiment of the present invention;

FIG. 5 is a diagram showing a front view showing screens for exemplary dual display states of a dual display type portable computer according to a preferred embodiment of the present invention; and

FIG. 6 is a flowchart showing a preferred embodiment of a dual display control method for a portable computer according to the present invention; and

FIGS. 7a to 7e are diagrams showing side views of a portion of a portable computer according to a preferred embodiment of the present invention.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

FIGS. 2a and 2b are schematic perspective views of a dual display type portable computer according to an embodiment of the present invention. FIGS. 3a and 3b are perspective views of an exemplary hinge unit according to embodiments of the present invention.

As shown in FIGS. 2a-3b, a dual display type portable computer according to an embodiment of the present invention can include a first unit 30, a second unit 33, and a hinge unit 35. The first unit 30 and the second unit 33 correspond to a body section and a display section of a general notebook computer and are rotatably coupled to each other through the hinge unit 35. The hinge unit 35 can be assembled near lateral rear ends of the first unit 30 and the second unit 33.

The first unit 30 and the second unit 33 have a first display module 31 and a second display module 34, respectively. Both the first display module 31 and the second display module 34 can be liquid crystal panels or the like for displaying a window screen. At least one of the first display module 31 and the second display module 34, preferably the first display module 31 in the first unit 30, may have a touch screen function (e.g., selectable by physical pressure or a sensor and a corresponding input device).

In each of the first unit 30 and the second unit 33, a rim surrounding the first display module 31 or the second unit 33 has a side adjacent to the hinge unit 35, which can be narrower than the other sides of the rim. One reason for such relatively narrower sides of the rims of the first unit 30 and the second unit 33 is to reduce or minimize a separation between screens of the first display module 31 and the second unit 33 when the first display module 31 and the second unit 33 display corresponding information or one integral image.

A construction of the exemplary hinge unit 35 that couples the first unit 30 and the second unit 33 with each other in such a manner as to enable them to be folded on or unfolded from each other will now be described. As shown in FIG. 3a, in the hinge unit 35, the portion connected with the first unit 30 can be a fixed hinge plate 37. The fixed hinge plate 37 can be assembled on an inner surface of a rear end of the first unit 30.

The fixed hinge plate 37 has a first hinge cylinder 39 having a predetermined length. A hinge hole 40 can extend longitudinally through the first hinge cylinder 39. In order to increase contact area between a first hinge shaft 45 and an inner surface of the hinge hole 40, the first hinge cylinder 39 is relatively long. Increasing the contact area between the first hinge shaft 45 and an inner surface of the hinge hole 40 can reduce the chance or prevent the first hinge shaft 45 from being too easily rotated. Alternatively, a predetermined damping construction or the like may be arranged inside of the first hinge cylinder 39 so as to prevent the first hinge shaft 45 from being too easily rotated.

The fixed hinge plate 37 can be fixed by fixing screws 41, which are screwed through corner portions of the fixed hinge plate 37 above and under the first hinge cylinder 39. It is preferred that the hinge hole 40 is formed at a vertically central portion of the first unit 30.

A hinge link 43 can pivotally couple the first unit 30 and the second unit 33 with each other. The hinge link 43 can have the first hinge shaft 45 rotatably inserted in the hinge hole 40 of the fixed hinge plate 37. The first hinge shaft 45 can have a length corresponding to the length of the hinge hole 40.

The hinge link 43 can have a plurality of stopper grooves 47 or the like formed along opposite longer sides of the hinge link 43. When the second display module 34 has been unfolded from the first unit 30 at a predetermined angle, the stopper grooves 47 can prevent a movable hinge bracket 53 from being moved down along the hinge link 43 by the weight of the second display module 34.

An engagement protuberance 49 can prevent the hinge link 43 from being separated from the movable hinge bracket 53. The engagement protuberance 49 can be at a distal end of the hinge link 43. Further, the engagement protuberance 49 can reduce or prevent the first unit 30 and the second unit 33 from being separated or disengaged from each other. The engagement protuberance can operate even when there exists no other connection between the first unit 30 and the second unit 33. Therefore, when a predetermined construction that can prevent the first unit 30 and the second unit 33 from disengaging each other exists at another portion of the computer, the engagement protuberance 49 may be unnecessary.

The first unit 30 and the second unit 33 preferably have a first hinge slot 51 and a second hinge slot 52, respectively, which enable the hinge link 43 to rotatably couple the first unit 30 and the second unit 33 with each other. The first hinge slot 51 can be formed through a rear surface and a portion of an upper surface of the first unit 30. The second